ET112

ET340

EM24 RS485

EM24 Ethernet

At Victron Energy, we stock several types of Energy Meters.

The Energy Meters are used in systems with a GX device to measure the output of a PV Inverter, a AC Genset or as a Grid Meter in an ESS installation. It also can be used to measure AC Loads at the output of an Inverter or Inverter/Charger like the MultiPlus or Quattro.

The Energy Meters connect to a GX device via RS485 either wirelessly via our Zigbee to USB and Zigbee to RS485 converters, or with a wired connection via our RS485 to USB interface and its data will be displayed on a GX device and our VRM portal.

Alternatively, the EM24 Ethernet meter can be used, provided the meter connects to a local network in such a way that the GX device can reach it.

Which Energy Meter should be selected depends on the installation, the number of phases you want to measure and the maximum current per phase. For a three-phase utility connection, use a three-phase meter. For a three-phase PV Inverter, use a three-phase meter as well. For a single-phase utility connection, use a single-phase meter. And in an installation with a single-phase utility connection, that also has a PV Inverter that needs measuring with a Victron meter, then you can use two pieces of ET112 or use the ET340.

The role (Grid meter, PV inverter, Generator and AC load) of the meter as well as the whole setup can easily be changed from the Setup menu in the GX device.

Energy Meter	ET112	ET340	EM24 RS485	EM24 Ethernet
Display	No	No	LCD	LCD
Manual	ET112	ET340	EM24 RS485	EM24 Ethernet
Part Number	REL300100000	REL300300000	REL200100000	REL200200100
Supported Phases	1 phase	3 phases		
Maximum Current Rating	100A	65A per phase		
Measurement Type	Shunt			
Data Connection	RS485			Ethernet

Differences between ET- and EM-series meters:

- ET meters have no display while EM meters have a LCD display.

Features:

The energy meter can be configured for four different roles in a GX device (e.g. Cerbo GX):

- As a Grid meter and used a control input for an ESS system.

- To measure the output of an PV Inverter.

- To measure the output of an AC Genset.

- As an AC meter to measure the output of an inverter or inverter/charger.

To make a selection, first decide whether you need single-phase or three-phase meters:

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Now, based on current, select the model:

Requirement	Measurement type	Model / Solution
Singel-phase up to 100A	Shunt	ET112
Three-phase up to 65A/phase	Shunt	ET340 / EM24
Singel phase more than 100A/phase	CT	Not available, use the three-phase CT solution
Three-phase more than 65A/phase	CTs	Carlo Cavazzi EM24DINAV53DISX

The EM24 meter counts energy in a different way than the ET340. For Germany and most other countries; the EM24 is the advised model.
See FAQ Q4 and Q8 in the manuals for further details regarding energy counting differences.

In case of EM24, select between RS485 and Ethernet connection:

The Ethernet mode will have an advantage in installations where an Ethernet network is available. Rather than having to pull an RS485 wire between the main AC distribution board and the storage system, the existing Ethernet can be used.
The disadvantage is that this relies on that network functioning properly – in case of issues the storage system will switch to idle mode: passthrough.

Support for other Carlo Gavazzi meters:

Besides above listed meters, there are many more meters available from Carlo Gavazzi. Use this list below to see which ones are compatible.

Type	GX Firmware supported	Remarks
EM111	Yes	Compatible with ET112
ET111	Yes	Compatible with ET112
EM112	Yes	Compatible with ET112
EM21 72D	No	Does not report exported energy / com Protocol not compatible with supported grid meters
EM271	No	Does not report exported energy / com Protocol not compatible with supported grid meters
EM330[1, 2]	Yes	EM330DINAV53HS1X27 EM330DINAV53HS1PFB27
EM340[1, 2]	Yes	EM340DINAV23XS1X27 EM340DINAV23XS1PFB27
EM530[1]	Yes	EM530DINAV53XS1X EM530DINAV53XS1PFC
EM540[1]	Yes	EM540DINAV23XS1X EM540DINAV23XS1PFC
[1] Requires GX firmware 2.90 and later.		
[2] Selected models are supported. Ask your reseller.		

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